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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/287,304	04/07/1999	AKIRA YAMAMOTO	0941.63012	6149

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GREER, BURNS & CRAIN
300 S WACKER DR
25TH FLOOR
CHICAGO, IL 60606

EXAMINER	
PIZIALI, JEFFREY J	

ART UNIT	PAPER NUMBER
2673	34

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/287,304	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	Jeff Piziali	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 25 February 2004 has been entered.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

3. The drawings were received on 21 November 2001. These drawings are acceptable.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-6, 8-16, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakajima (US 5,654,735).

Regarding claim 1, Nakajima discloses a liquid crystal display device including a data driver [Fig. 1; 13] and a gate driver [Fig. 1; 12], comprising an LCD panel [Fig. 1; 1] having two opposing generally flat surfaces, an area of one of the flat surfaces for displaying an image, and at least two edges opposing one another about the flat surfaces and outside of the display area; a substrate on which the LCD panel, the data driver and the gate driver are integrally formed; the data driver on a single edge of the at least two opposing edges of the LCD panel being divided into a plurality of blocks [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] so as to divide the LCD panel into sections arranged side by side, which simultaneously supply the LCD panel with display signals respectively supplied thereto; wherein each of the blocks includes a plurality of signal lines [Fig. 1; VIDEO, SIG1-SIG3] that are connected to a plurality of data bus lines [Fig. 1; V_n, V_{n+1}, etc.] via analog switches [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}], a number of the data bus lines being larger than a number of the signal lines, the display signals being supplied from the signal lines of each block to the data bus lines simultaneously, and the blocks are arranged adjacent to each other along the single edge of the LCD panel (Column 3, Line 64 - Column 6, Line 5).

Regarding claim 2, Nakajima discloses a block comprising a shift register [Fig. 1; 15]; signal lines [Fig. 1; VIDEO, SIG1-SIG3] connected to the signal lines and the LCD panel; and analog switches [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] provided in the data bus lines and controlled by an output signal of the shift register thereto (Column 3, Line 64 - Column 4, Line 42).

Regarding claim 3, Nakajima discloses a driver device [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] which receives display data [Fig. 1; VIDEO, SIG1-SIG3] externally supplied and outputs the

display signals derived therefrom to the blocks of the data driver (Column 3, Line 64 - Column 6, Line 5).

Regarding claim 4, Nakajima discloses a plurality of driver devices [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] which are respectively associated with a plurality of ones of the blocks, each of the plurality of driver devices receiving display data [Fig. 1; VIDEO, SIG1-SIG3] externally supplied and outputting the display signals derived therefrom to associated blocks of the data driver (Column 3, Line 64 - Column 6, Line 5).

Regarding claim 5, Nakajima discloses the display signal lines [Fig. 1; VIDEO, SIG1-SIG3] of the associated blocks have parts extending from one of the plurality of driver devices [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] through a space located between the associated blocks (Column 3, Line 64 - Column 6, Line 5).

Regarding claim 6, Nakajima discloses a substrate on which the LCD panel, data driver and gate driver are integrally formed (see Fig. 1; Column 3, Line 64 - Column 6, Line 5).

Regarding claim 8, Nakajima discloses a display signal supply device [Fig. 1, 2] which outputs the display data [Fig. 1; VIDEO, SIG1-SIG3] to the driver device [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] (Column 3, Line 64 - Column 6, Line 5).

Regarding claim 9, Nakajima discloses the display signal display device is formed on the LCD panel (see Fig. 1; Column 3, Line 64 - Column 6, Line 5).

Regarding claim 10, Nakajima discloses a display signal supply device [Fig. 1, 2] which outputs the display data [Fig. 1; VIDEO, SIG1-SIG3] to the plurality of driver devices [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] (Column 3, Line 64 - Column 6, Line 5).

Regarding claim 11, Nakajima discloses each of the plurality of blocks [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] supplies the LCD panel [Fig. 1; 1] with a given number of display signals [Fig. 1; 1] at once (Column 3, Line 64 - Column 6, Line 5).

Regarding claim 12, Nakajima discloses the driver device comprises a shift register [Fig. 1; 15] which outputs a shift signal [Fig. 1; $Ø_n$, $Ø_{n+1}$, $Ø_{n+2}$], first latch circuits [Fig. 1; 21-23] which latch the display data in response to the shift signal, and second latch circuits [Fig. 1; 24-26] which latch the display data from the first latch circuits in response to a latch enable signal [Fig. 1; SH1-SH4] externally supplied (Column 4, Line 43 - Column 6, Line 5).

Regarding claim 13, Nakajima discloses digital-to-analog converters [Fig. 3, 202] which convert the display data from the second latch circuits into analog signals (Column 7, Line 60 - Column 8, Line 38).

Regarding claim 14, Nakajima discloses a liquid crystal display device including a data driver [Fig. 1; 13] and a gate driver [Fig. 1; 12], comprising an LCD panel [Fig. 1; 1] having two opposing generally flat surfaces, an area of one of the flat surfaces for displaying an image, and at least two edges opposing one another about the flat surfaces and outside of the display area;

and groups of signal lines [Fig. 1; VIDEO, SIG1-SIG3] for carrying display signals, the signal lines within each of the groups being adjacent to each other along a single edge of the at least two opposing edges of the LCD panel, and the data driver being divided into a plurality of adjacently arranged blocks [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] from which the groups of signal lines extend over corresponding partial areas of the LCD device so that each of the groups of signal lines is associated with a respective one of the blocks of the data driver, wherein the signal lines in each of the blocks are connected to a plurality of data bus lines [Fig. 1; V_n, V_{n+1}, etc.] via analog switches [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}], a number of the data bus lines is larger than a number of the signal lines, and the display signal are supplied from the signal lines of each block to the data bus lines simultaneously (Column 3, Line 64 - Column 6, Line 5).

Regarding claim 15, Nakajima discloses a liquid crystal display device including a data driver [Fig. 1; 13] and a gate driver [Fig. 1; 12], comprising an LCD panel [Fig. 1; 1] having two opposing generally flat surfaces, an area of one of the flat surfaces for displaying an image, and at least two edges opposing one another about the flat surfaces and outside of the display area; signal lines [Fig. 1; VIDEO, SIG1-SIG3] extending from the data driver and carrying display signals, the data driver and the signal lines being divided into a plurality of blocks [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] so that the divided signal lines extending from one of the plurality of blocks extends over a corresponding divided area of the LCD device; wherein the plurality of blocks are adjacent to each other along a single edge of the at least two opposing edges of the LCD panel, the divided signal lines in each of the plurality of blocks are connected to a plurality of data bus lines [Fig. 1; V_n, V_{n+1}, etc.] via analog switches [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}], a number of the data bus lines being larger than a number of the signal lines, and display signals

being supplied from the signal lines of each of the blocks to the data bus lines simultaneously (Column 3, Line 64 - Column 6, Line 5).

Regarding claim 16, Nakajima discloses a liquid crystal display device including a data driver [Fig. 1; 13] and a gate driver [Fig. 1; 12], comprising an LCD panel [Fig. 1; 1] having two opposing generally flat surfaces, an area of one of the flat surfaces for displaying an image, and at least two edges opposing one another about the flat surfaces and outside of the display area; a substrate on which the LCD panel, the data driver and the gate driver are integrally formed; the data driver being divided into a plurality of blocks [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] arranged side by side along a single edge of the at least two opposing edges of the LCD panel, and each of the blocks has a plurality of signal lines [Fig. 1; VIDEO, SIG1-SIG3] that extend into the liquid crystal display device and are connected to a plurality of data bus lines [Fig. 1; V_n, V_{n+1}, etc.] via analog switches [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}], a number of the data bus lines being larger than a number of the signal lines, and display signals being supplied from the signal lines of each block to the data bus lines simultaneously (Column 3, Line 64 - Column 6, Line 5).

Regarding claim 18, Nakajima discloses each of the blocks [Fig. 1; HSW_n, HSW_{n+1}, HSW_{n+2}] is arranged adjacent to a block of at least one of an immediately preceding block and an immediately following block (Column 3, Line 64 - Column 6, Line 5).

Regarding claim 19, this claim is rejected by the reasoning applied in the above rejection of claim 18.

Regarding claim 20, this claim is rejected by the reasoning applied in the above rejection of claim 18.

Regarding claim 21, this claim is rejected by the reasoning applied in the above rejection of claim 18.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima (US 5,654,735).

Regarding claims 7 and 17, Nakajima does not expressly disclose the data driver comprising polysilicon transistors. However, the use of polysilicon transistors within data drivers was well known and commonly understood in the art of LCD data electrode driving at the time of invention. Therefore, it would have been obvious to one skilled in the art at the time of invention to use polysilicon transistors within Nakajima's data driver, so as to manufacture the device with commonly available circuitry components.

Response to Arguments

8. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Imamura (US 5,914,699), Kubota et al. (US 5,977,944), Kurokawa et al. (US 6,130,657), and Park et al. (US 6,362,804) are cited to further evidence the state of the art pertaining to liquid crystal display panels.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (703) 305-8382. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

J.P.
22 March 2004

BIPIN SHALWALA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600